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Soil
Conservation
Service



Washington

Basin Outlook Report

June 1, 1994



Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Soil Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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Washington Water Supply Outlook

JUNE 1994

General Outlook

Forecasts for 1994 runoff vary from 91% of average for Thunder Creek near Newhalem to 42% for the Spokane River near Post Falls. As of June 1, the snowpack varied from a high of 57% of average in the Cowlitz - Lewis River Basin to 0% in many basins state wide. Washington SNOTEL sites averaged 38% of the normal snowpack, down from 70% on May 1. May precipitation was 92% of normal statewide. It varied from 159% of average in the Walla Walla River Basin to 56% in the Wenatchee - Chelan River Basins. Year-to-date precipitation varies from 66% in the Spokane and Yakima Basins to 83% in the Olympic Basin. May temperatures were two to five degrees above normal across the state. May streamflows varied from 107% of normal in the Columbia at Birchbank to 37% in the Yakima River at Kiona. June 1 reservoir storage continued seasonal fluctuations throughout the state, with highs of 160% of average in the Colville - Pend Oreille system to a low of 70% of normal in the Yakima Basin.

Snowpack

By June 1, only 13 higher elevation SNOTEL sites had snow. Only a few sites in the state normally are melted out at this time. Maximum snow cover was at Paradise SNOTEL near Mount Rainier, with a water content of 43.6 inches. Normal June 1 water content for this site would be 48.1 inches. The June 1 SNOTEL reading showed the statewide snowpack to be 38% of average. Snowpack varied considerably over the state, with the Spokane, Walla Walla and Olympic river basins at 0% to a high of 57% of normal in the Lewis - Cowlitz River Basin. The Olympics dropped from a May 1 statewide high of 91% to 0% of average on June 1. Other Westside snowpack averages were: the Skagit River Basin with 30%, the Snohomish River basin at 12% and the White River at 38% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima Basin with 25% of normal, and the Wenatchee with 32%. Snowpack in the Okanogan Basin was at 50% of normal, and the Kettle had 7%.

Precipitation

May precipitation varied from 193% of average in the Okanogan - Methow River Basins, to 71% in the Yakima Basin. May precipitation reported from National Weather Service stations was 92% of average statewide. The year-to-date precipitation statewide is 71%. It varies from 66% of normal in the Spokane and Yakima Basins, to 83% in the Olympic Basin. SNOTEL sites in Washington showed high elevation year-to-date precipitation values to be 78% of average. Maximum year-to-date precipitation was at the June Lake SNOTEL site near Mt. St. Helens, with 119 inches since October 1, 1993.

Reservoir

With increased snow melt and runoff due to warmer temperatures, some reservoir levels in the state continued to rise. In contrast other reservoirs are beginning to decrease, this can be attributed to many factors like irrigation draw down and early snow melt combined with evaporation. Reservoir storage in the Yakima Basin was 655,600 acre feet, 70% of normal, up from 66% a month ago. Storage at other reservoirs included Roosevelt at 159% of average, and the Okanogan reservoirs at 130% of normal for June 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 230,500 acre feet, or 82% of normal; Chelan Lake, 492,700 acre feet, 109% of average and 73% of capacity, and Ross Lake at 115% of average and 84% of capacity.

Streamflow

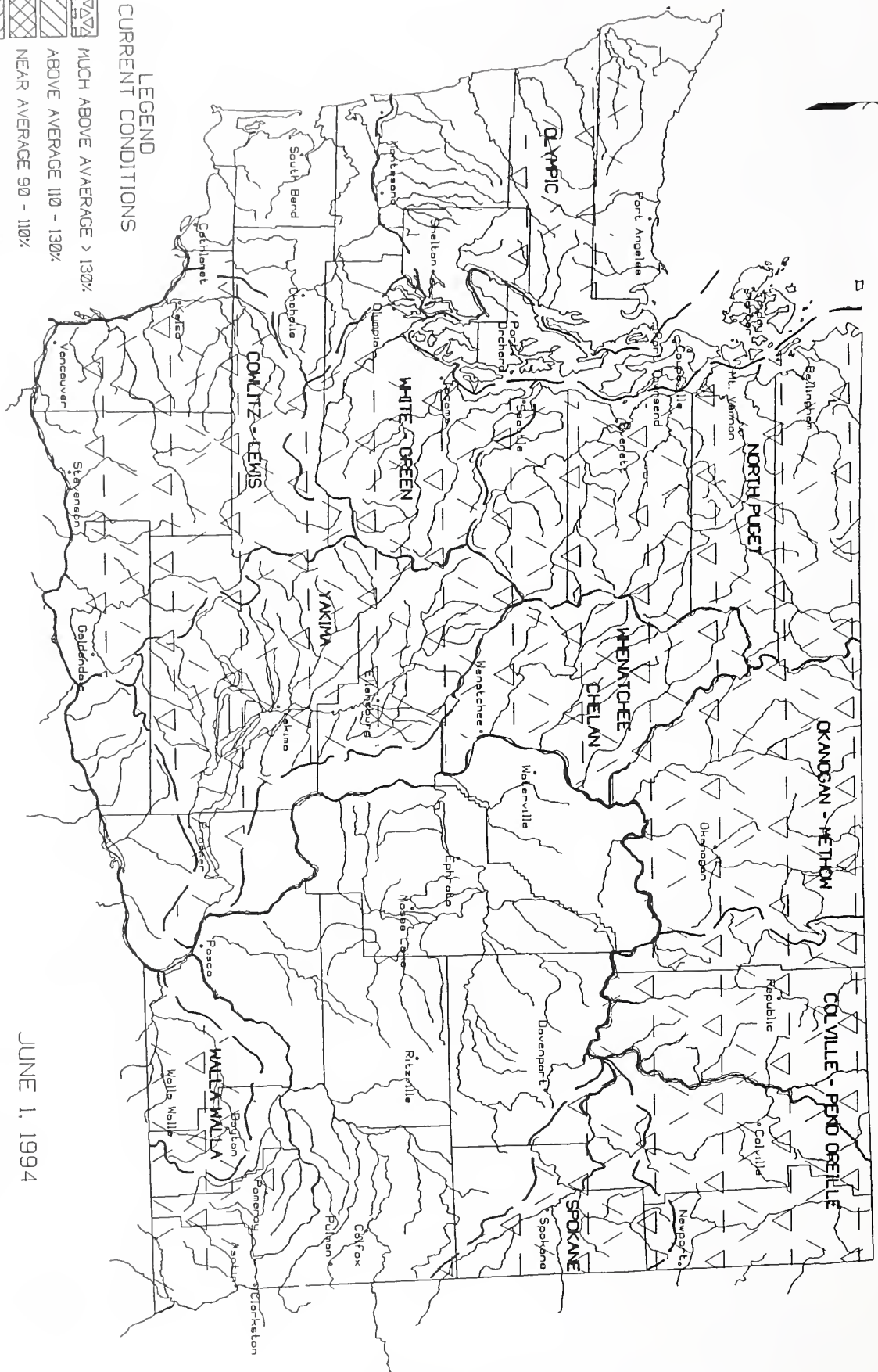
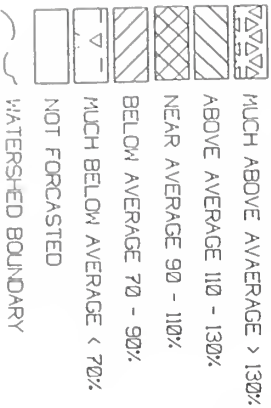
May streamflows varied greatly in Washington. Columbia River at Birchbank was the highest at 107% of normal, the Yakima River at Kiona with 37% of normal, was still the lowest in the state. Other streamflows were the following percentage of normal: the Cowlitz River, 66%; the Okanogan River, 90%; the Wenatchee River, 91%; the Columbia at The Dalles, Oregon, 79%, and the Spokane River, 39%. Forecasts for summer streamflows are for below to much below average. They vary from 91% of average for Thunder Creek near Newhalem to 42% of normal for the Spokane River near Post Falls. June forecasts for some Westside streams include: Cedar River, 52%; Green River, 58%; and the Dungeness River, 73%. Some eastside streams include the Grande Ronde River, 70%; the Wenatchee River, 54%; and the Pend Oreille River, 50%. Salmon Creek near Conconully is forecast to have 73% of normal runoff and the Yakima near Parker 63%.

LOST - DATA CURRENT AS OF: 6/ 8/94

BASIN SUMMARY OF
SNOW COURSE DATA
JUNE 1994

SNOW COURSE		ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE		ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
PEND OREILLE RIVER								UPPER WHEELER PILLOW		4400	6/01/94	---	.05	.0	.0
BUNCHGRASS MDWPILLOW		5000	6/01/94	---	.0	.0	15.4	SQUILCHUCK CREEK							
HOODOO BASIN		6050	6/01/94	---	8.8E	13.8	32.9	STEMILT CREEK							
HOODOO CREEK		5900	6/01/94	---	3.6E	10.8	31.9	UPPER WHEELER PILLOW		4400	6/01/94	---	.05	.0	.0
LOOKOUT PILLOW		5140	6/01/94	---	.0	.0	10.0	COLOCKUM CREEK							
KETTLE RIVER								TROUGH #2 PILLOW		5310	6/01/94	---	.05	.0	.0
BIG WHITE MTN CAN.		5510	5/30/94	2	.6	.0	8.9	YAKIMA RIVER							
FARRON CAN.		4000	5/26/94	0	.0	.0	.3	BLEWETT PASS#2PILLOW		4270	6/01/94	0	.05	.0	.0
COLVILLE RIVER								BUMPING RIDGE PILLOW		4600	6/01/94	---	.05	.0	6.3
OMAK LAKE, TWIN LAKES								CORRAL PASS PILLOW		6000	6/01/94	---	12.5S	11.7	19.6
MOSES MTN PILLOW		4800	6/01/94	---	.0S	--	.0	FISH LAKE PILLOW		3370	6/01/94	---	.05	.0	5.0
SPOKANE RIVER								GREEN LAKE PILLOW		6000	6/01/94	---	.05	.0	3.8
LOST LAKE (d)		6110	6/01/94	---	.0E	20.2	41.6	GROUSE CAMP PILLOW		5380	6/01/94	---	.05	.0	.0
MOSQUITO RDG PILLOW		5200	6/01/94	---	.0	.0	16.0	LOST HORSE PILLOW		5000	6/01/94	---	.05	.0	.0
SUNSET PILLOW		5540	6/01/94	---	.0	4.9	20.7	HORSE LAKE PILLOW		5400	6/01/94	---	8.7S	5.1	21.4
LOOKOUT PILLOW		5140	6/01/94	---	.0	.0	10.0	OLALLIE MDWS PILLOW		3960	6/01/94	---	6.0S	.0	30.0
NEWMAN LAKE								SASSE RIDGE PILLOW		4200	6/01/94	---	.05	.0	1.3
QUARTZ PEAK PILLOW		4700	6/01/94	---	.0	.0	.0	STAMPEDE PASS PILLOW		3860	6/01/94	---	.05	.0	15.0
OKANOGAN RIVER								WHITE PASS ES PILLOW		4500	6/01/94	---	.05	.0	4.6
BLACKWALL PEAK CAN.		6370	6/01/94	---	2.0	.0	26.2	ANTANUM CREEK							
ENDERBY CAN.		6200	5/31/94	60	31.5	16.3	39.0	GREEN LAKE PILLOW		6000	6/01/94	---	.05	.0	3.8
FREEZEOUT CK. TRAIL		3500	5/27/94	0	.0	.0	--	LOST HORSE PILLOW		5000	6/01/94	---	.05	.0	.0
HARTS PASS		6500	5/26/94	32	16.0	15.6	--	MILL CREEK							
HARTS PASS PILLOW		6500	6/01/94	---	6.0S	5.5	25.3	HIGH RIDGE PILLOW		4980	6/01/94	---	.05	.0	.6
MISSION CREEK CAN.		5800	6/01/94	10	5.0	2.4	13.6	TOUCHET #2 PILLOW		5530	6/01/94	---	.0	.0	--
MT. KOBAY CAN.		5900	5/29/94	0	.0	.0	5.0	LEWIS - COWLITZ RIVERS							
SALMON MDWS PILLOW		4500	6/01/94	---	.0S	.0	.0	JUNE LAKE PILLOW		3200	6/01/94	---	.0S	.0	.0
SILVER STAR MTN CAN.		6000	5/30/94	25	12.2	8.8	16.9	LONE PINE PILLOW		3800	6/01/94	---	5.1S	8.5	9.4
WHITE ROCKS MTN CAN.		6000	6/03/94	0	.0	.0	9.3	PARADISE PARK PILLOW		5500	6/01/94	---	43.6S	39.4	48.1
METHOW RIVER								PIGTAIL PEAK PILLOW		5900	6/01/94	---	19.2S	2.0	37.5
HARTS PASS		6500	5/26/94	32	16.0	15.6	--	POTATO HILL PILLOW		4500	6/01/94	---	.05	.0	1.1
HARTS PASS PILLOW		6500	6/01/94	---	6.0S	5.5	25.3	SHEEP CANYON PILLOW		4050	6/01/94	---	.05	.0	11.6
SALMON MDWS PILLOW		4500	6/01/94	---	.0S	.0	.0	SPENCER MDW PILLOW		3400	6/01/94	---	.05	.0	.0
CHELAN LAKE BASIN								SPIRIT LAKE PILLOW		3100	6/01/94	---	.05	.0	.0
LYMAN LAKE PILLOW		5900	6/01/94	---	17.5S	22.8	43.3	SURPRISE LKS PILLOW		4250	6/01/94	---	4.0S	2.3	14.5
MINERS RIDGE PILLOW		6200	6/01/94	---	17.0S	14.6	38.1	WHITE PASS ES PILLOW		4500	6/01/94	---	.05	.0	4.6
PARK CK RIDGE PILLOW		4600	6/01/94	---	.0E	.0	5.2	WHITE RIVER							
RAINY PASS		4780	5/26/94	6	3.0	.0	--	CORRAL PASS PILLOW		6000	6/01/94	---	12.5S	11.7	19.6
RAINY PASS PILLOW		4780	6/01/94	---	.5S	.0	20.4	HORSE LAKE PILLOW		5400	6/01/94	---	8.7S	5.1	21.4
ENTIAT RIVER								GREEN RIVER							
POPE RIDGE PILLOW		3540	6/01/94	---	.0S	.0	.0	COUGAR MTN. PILLOW		3200	6/01/94	---	.0S	.0	.0
WENATCHEE RIVER								GRASS MOUNTAIN #2		2900	5/31/94	0	.0	--	--
BLEWETT PASS#2PILLOW		4270	6/01/94	0	.0S	.0	.0	LESTER CREEK		3100	5/31/94	0	.0	--	--
FISH LAKE PILLOW		3370	6/01/94	---	.0S	.0	5.0	LYNN LAKE		4000	5/31/94	0	.0	--	--
LYMAN LAKE PILLOW		5900	6/01/94	---	17.5S	22.8	43.3	STAMPEDE PASS PILLOW		3860	6/01/94	---	.05	.0	15.0
STEVENS PASS PILLOW		4070	6/01/94	---	.0E	.0	5.7	TWIN CAMP		4100	5/31/94	0	.0	--	--
TROUGH #2 PILLOW		5310	6/01/94	---	.0S	.0	.0	CEDAR RIVER							





JUNE 1, 1994

MOUNTAIN SNOWPACK WASHINGTON

Interpreting Streamflow Forecasts

Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

Most Probable (50 Percent Chance of Exceeding) Forecast. This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast; it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

To Decrease the Chance of Having Too Little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

70 Percent Chance of Exceeding Forecast. There is a 70 percent chance that the streamflow volume will exceed this forecast value. There is a 30 percent chance the streamflow volume will be less than this forecast value.

90 Percent Chance of Exceeding Forecast. There is a 90 percent chance that the streamflow volume will exceed this forecast value. There is a 10 percent chance the streamflow volume will be less than this forecast value.

To Decrease the Chance of Having Too Much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

30 Percent Chance of Exceeding Forecast. There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

10 Percent Chance of Exceeding Forecast. There is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

Using the forecasts—an example

Using the Most Probable Forecast. Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Deeth between March 1 and July 31.

Using the Higher Exceedance Forecasts. If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are available from the National Weather Service every two weeks), or if they are operating at a level where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

Using the Lower Exceedance Forecasts. If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

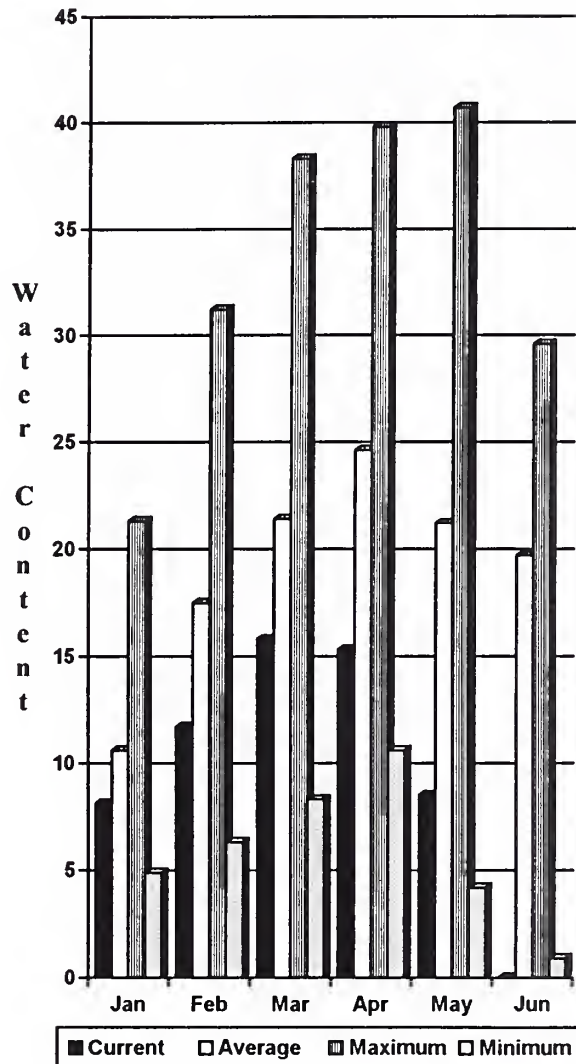
In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

UPPER HUMBOLDT RIVER BASIN								
STREAMFLOW FORECASTS								
FORECAST POINT	FORECAST PERIOD	<—DRIER— FUTURE CONDITIONS —WETTER—>						
		————— Chance of Exceeding —————						
		90%	70%	50% (Most Probable)	30%	10%	25 YR.	
		(1000AF)	(1000AF)	(1000AF) (% AVG.)	(1000AF)	(1000AF)	(1000AF)	
MARY'S RIVER nr Deeth	MAR-JUL	5.0	20.0	36	77	52	76	47
	APR-JUL	8.0	17.0	31	74	45	67	42
LAMOILLE CREEK nr Lamoille	MAR-JUL	6.0	16.0	24	79	32	43	31
	APR-JUL	4.0	15.0	22	75	30	41	30
NF HUMBOLDT RIVER at Devils Gate	MAR-JUL	6.0	12.0	43	73	74	121	59

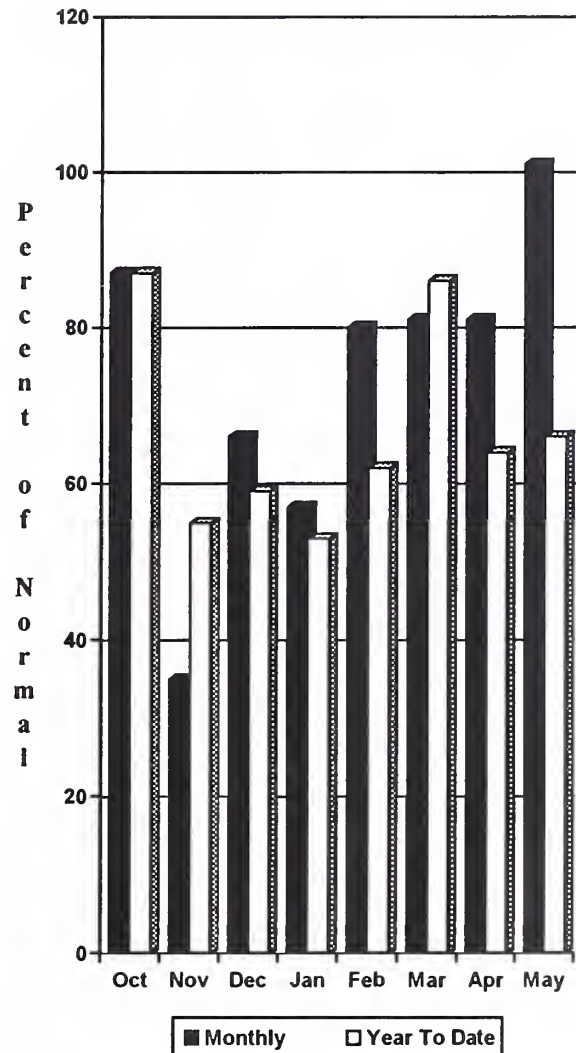
For more information concerning streamflow forecasting ask your local SCS field office for a copy of "A Field Office Guide for Interpreting Steamflow Forecasts".

1) Spokane River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The June 1 forecast for summer runoff within the Spokane River Basin is 42% of normal, up slightly from 41% last month. The forecast is based on a snowpack that is 0% of average and precipitation that is 66% of normal for the water year. Precipitation for May was 101% of average. Streamflow in the Spokane River was 39% of average for May. June 1 storage in Coeur d'Alene Lake was 230,500 acre feet, 82% of normal, and 97% of capacity. Temperatures in the basin were three degrees above normal during May.

For more information contact your local Soil Conservation Service office.

SPOKANE RIVER BASIN

Streamflow Forecasts - June 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						
		90%		Chance Of Exceeding *		30%		30-Yr Avg.
		(1000AF)	(1000AF)	50% (Most Probable)	(% AVG.)	(1000AF)	(1000AF)	
SPOKANE near Post Falls	JUN-SEP	109	245	335	42	425	560	794
SPOKANE at Long Lake	JUN-JUL	200	320	400	46	480	600	861
	JUN-SEP	330	470	565	52	660	800	1083

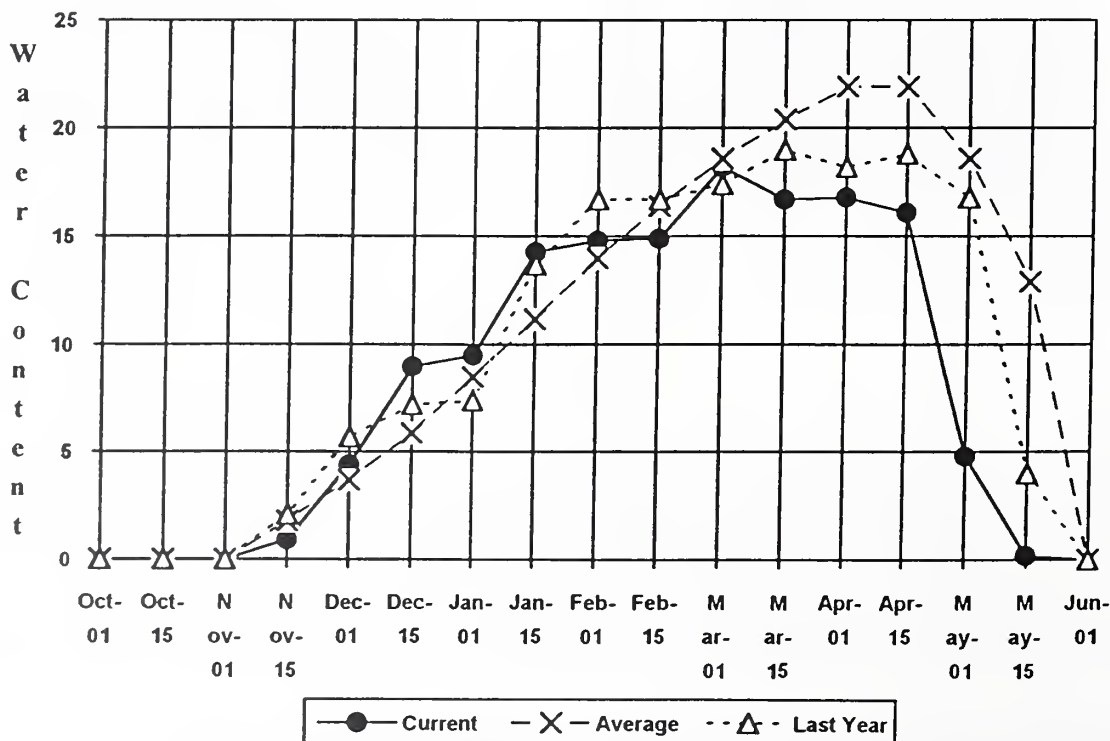
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of May					SPOKANE RIVER BASIN Watershed Snowpack Analysis - June 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COEUR D'ALENE	238.5	230.5	227.5	280.5	Spokane River	7	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

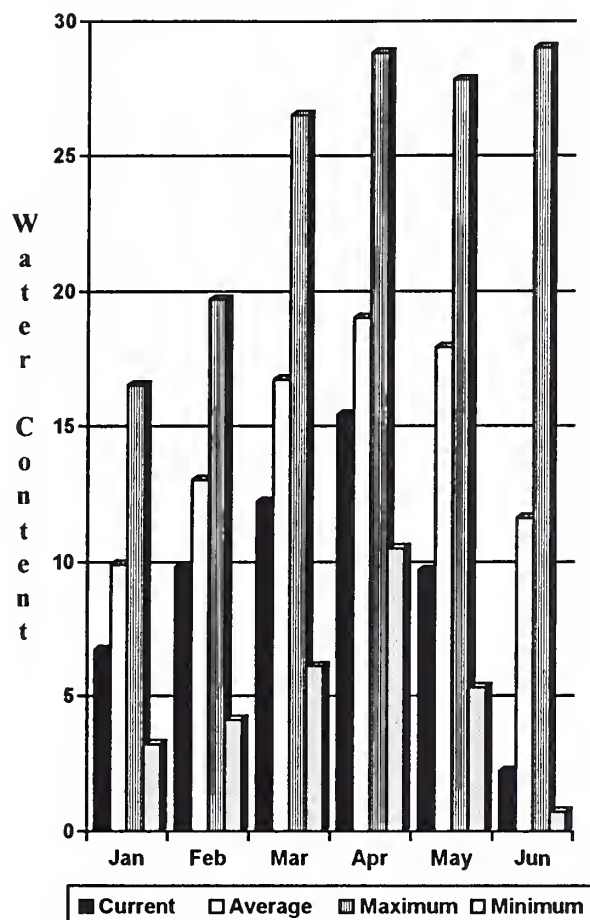
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Quartz Peak SNOTEL

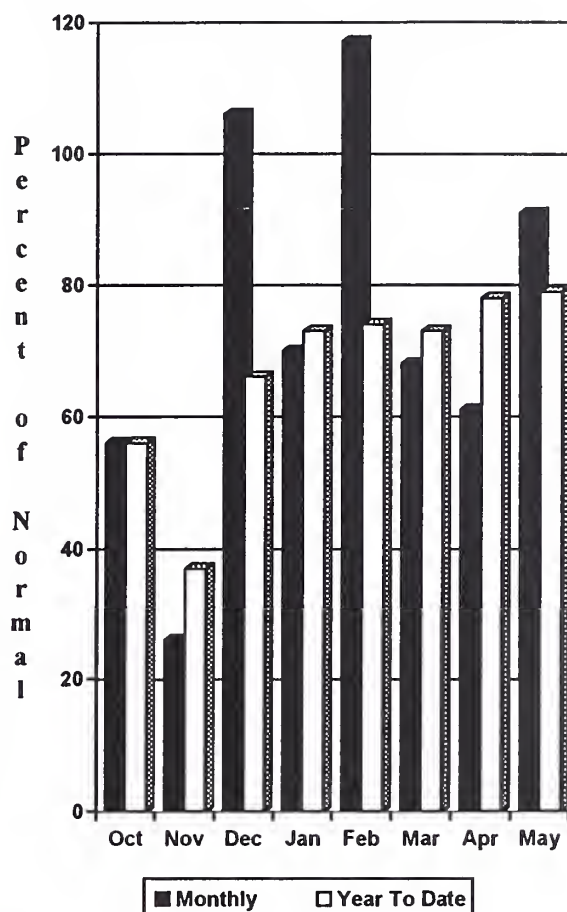


2) Colville - Pend Oreille River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

The forecast for the Kettle River streamflow is for 73% of normal; the Pend Oreille, 50%, and the Colville River, 66% of normal for the summer runoff period. Forecast for the Columbia River at Birchbank is for runoff to be 87% of average. May streamflow was 73% of normal in the Pend Oreille River, 107% in the Columbia at the International Boundary, and 89% in the Kettle River. June 1 snow cover was 19% of normal in the Pend Oreille Basin. Snowpack at Bunchgrass Meadow SNOTEL site contained 0.0 inches of water, the average June 1 reading is 15.4 inches. Precipitation during May was 91% of average, bringing the water year-to-date to 79% of normal. Temperatures were three degrees above normal for May.

For more information contact your local Soil Conservation Service office.

COLVILLE - PEND OREILLE RIVER BASINS

Streamflow Forecasts - June 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		-----		Chance Of Exceeding *		-----		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
PEND OREILLE bl Box Canyon (1,2)	JUN-JUL	485	2160	2920	45	3680	5360	6543
	JUN-SEP	1010	2860	3700	48	4540	6390	7754
CHAMOKANE CK nr Long Lake	MAY-AUG	0.3	3.1	5.1	54	7.1	9.9	9.4
	JUL-AUG	1.6	1.9	2.0	61	2.1	2.4	3.3
COLVILLE at Kettle Falls	JUN-SEP	14.0	22	27	66	32	40	41
	JUN-JUL	9.0	16.0	20	67	24	31	30
KETTLE near Laurier	JUN-SEP	420	540	620	73	700	820	851
	JUN-JUL	390	485	550	73	615	710	758
COLUMBIA at Birchbank (1,2)	JUN-JUL	15800	17900	18900	82	19900	22000	22910
	JUN-SEP	23100	25900	27100	86	28300	31100	31580
COLUMBIA at Grand Coulee Dm (1,2)	JUN-SEP	27200	31100	32800	79	34500	38400	41706
	JUN-JUL	19500	22700	24100	77	25500	28700	31400

COLVILLE - PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of May					COLVILLE - PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - June 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROOSEVELT	5232.0	4532.3	4491.4	2851.0	Colville River	0	0	0
BANKS	715.0	689.6	701.5	418.0	Pend Oreille River	43	54	19
					Kettle River	2	0	7

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

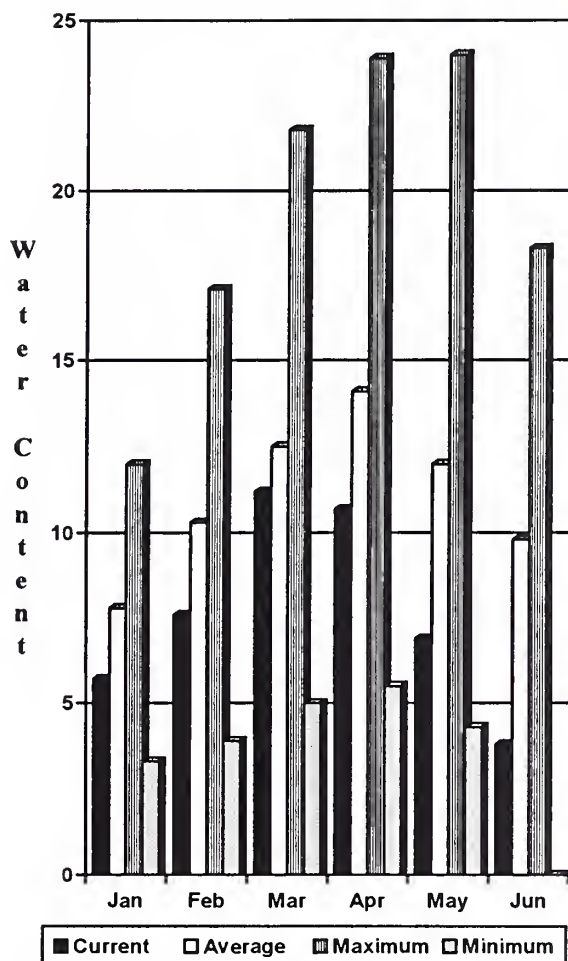
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

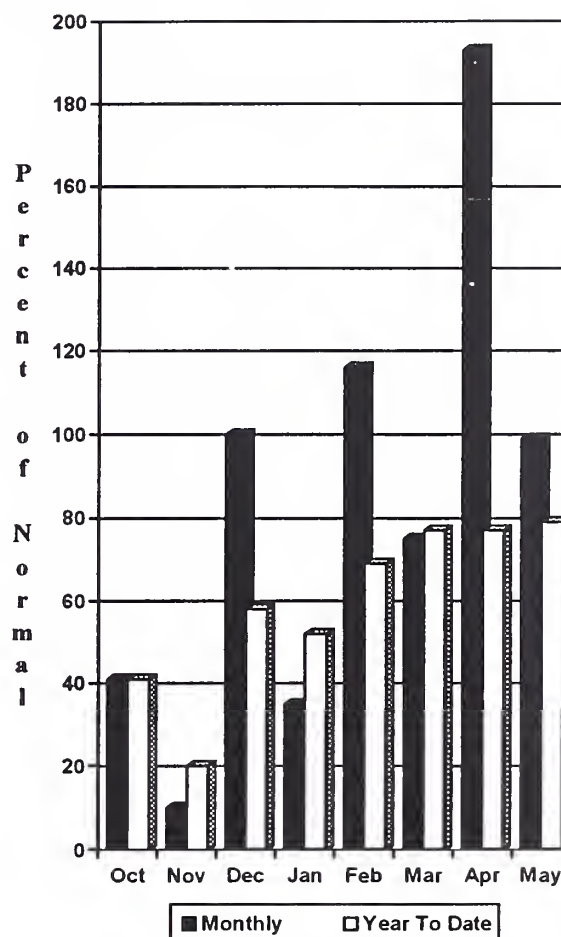
(2) - The value is natural flow - actual flow may be affected by upstream water management.

3) Okanogan - Methow River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

Summer runoff forecast for the Okanogan River is for 51% of normal; the Similkameen River, 50%, and the Methow River, 64% of normal. With Salmon Creek near Conconully at 73% of average. June 1 snow cover in the Okanogan was 42% of normal, the Smilkameen 8%, and the Methow 24%. May precipitation in the Okanogan - Methow was 99% of normal, with water year-to-date at 79% of average. May streamflow in the Methow River was 83% of normal, 86% in the Similkameen, and 90% in the Okanogan River. Snow water content at the Harts Pass SNOTEL, elevation 6500 feet, was 6.0 inches; normal for this site is 25.3 inches. Temperatures were three degrees above normal for May. Combined storage in the Conconully and Salmon Lake Reservoirs was 23,400 acre feet, which is 100% of capacity and 130% of the June 1 average.

For more information contact your local Soil Conservation Service office.

OKANOGAN - METHOW RIVER BASINS

Streamflow Forecasts - June 1, 1994

		<<----- Drier ----- Future Conditions ----- Wetter ----->>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SIMILKAMEEN nr Nighthawk (1)	MAY-SEP	485	600	655	50	710	825	1300
	MAY-JUL	470	585	640	53	695	810	1205
	MAY-JUN	435	510	540	53	570	645	1014
OKANOGAN RIVER nr Tonasket (1)	MAY-SEP	260	595	750	51	905	1240	1485
	MAY-JUL	260	555	690	52	825	1120	1328
	MAY-JUN	235	475	580	53	685	925	1095
SALMON CREEK nr Conconully	JUN-JUL	0.1	4.3	7.1	76	9.9	14.1	9.3
	JUN-SEP	0.1	4.3	7.4	73	10.5	15.1	10.2
METHOW RIVER nr Pateros (1)	MAY-SEP	370	490	545	64	600	720	854
	MAY-JUL	350	470	520	66	570	690	786
	MAY-JUN	280	390	440	67	490	600	659

OKANOGAN - METHOW RIVER BASINS Reservoir Storage (1000 AF) - End of May					OKANOGAN - METHOW RIVER BASINS Watershed Snowpack Analysis - June 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
SALMON LAKE	10.5	10.4	8.9	9.0	Okanogan River	8	172	42
CONCONULLY RESERVOIR	13.0	13.0	8.7	9.0	Methow River	2	109	24

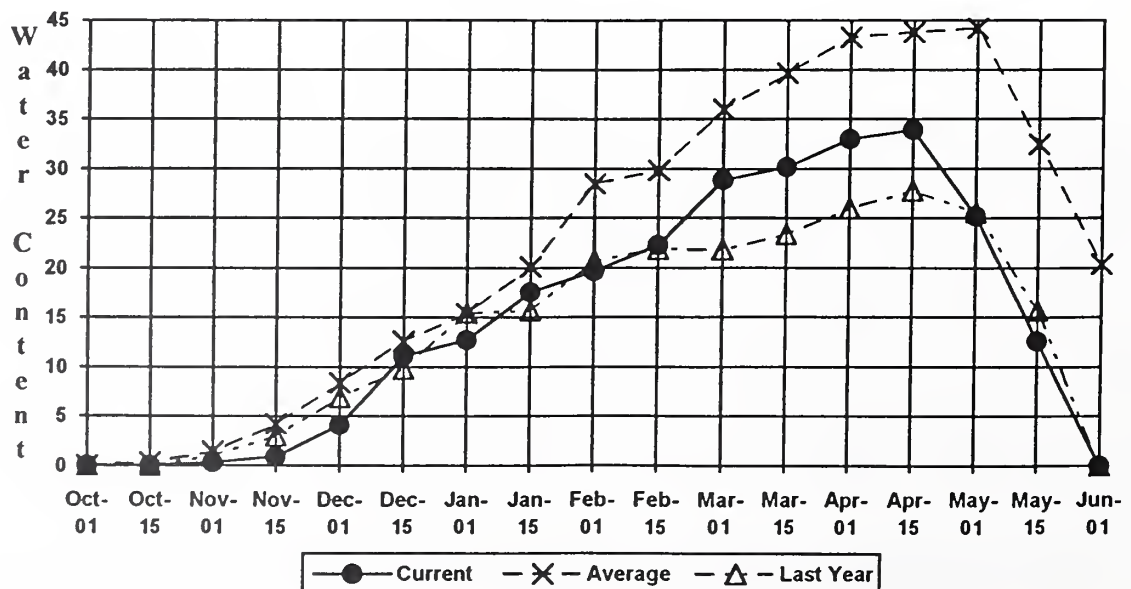
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

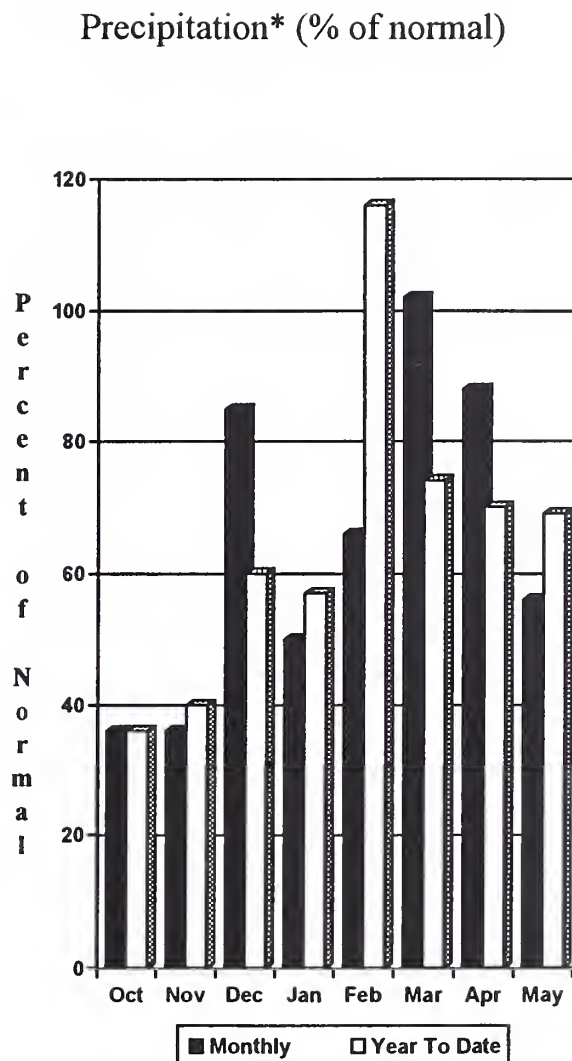
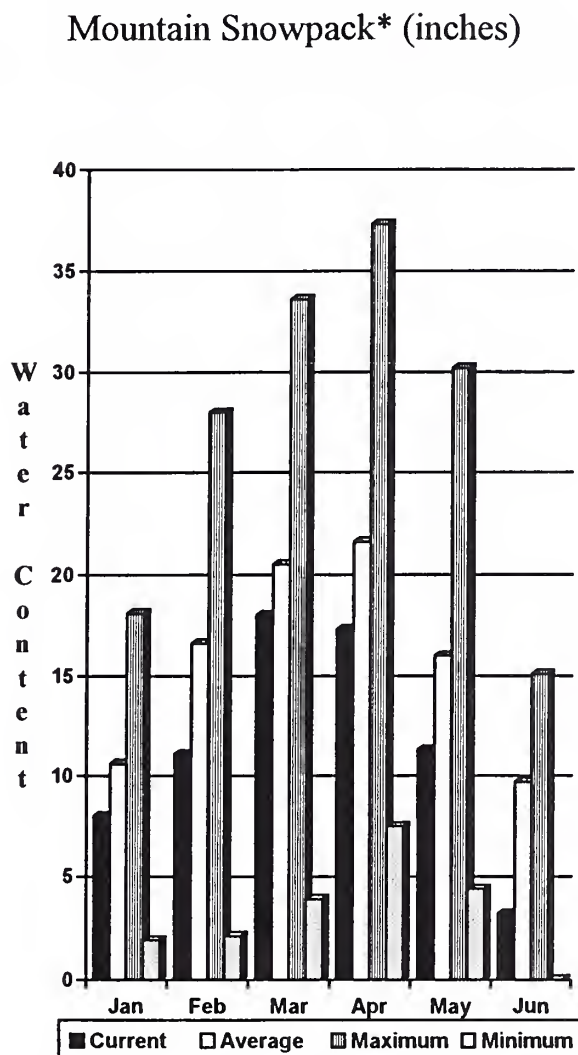
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

Rainy Pass SNOTEL



4) Wenatchee - Chelan River Basins



*Based on selected stations

The summer forecast for the Chelan River is for 71% of normal, for the Wenatchee River it is 54%, and 74% for the Squilchuck-Stemilt. Icicle Creek can expect 82% runoff this summer. Streamflow for May on the Chelan River was 95% of average and on the Wenatchee River it was 91% of normal. June 1 snowpack in the Wenatchee Basin was 32% of average, the Chelan 33% and the Stimelt was 0% of normal. Precipitation during May was 56% of normal in the basin and 69% for the year-to-date. Runoff for the Entiat River is forecast to be 72% of normal for the summer. Reservoir storage in Lake Chelan was 492,700 acre feet or 109% of June 1 average and 73% of capacity. Lyman Lake SNOTEL had the most snow water with 17.5 inches of water. This site would normally have 43.3 inches.

For more information contact your local Soil Conservation Service office.

WENATCHEE - CHELAN RIVER BASINS

Streamflow Forecasts - June 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
CHELAN RIVER at Chelan (1)	MAY-SEP	535	675	740	71	805	945	1041
	MAY-JUL	460	585	640	71	695	820	905
	MAY-JUN	355	445	490	71	535	625	693
STEHEKIN R. at Stehekin	MAY-SEP	475	520	550	73	580	625	751
	MAY-JUL	395	435	460	74	485	525	625
	MAY-JUN	295	320	340	74	360	385	462
ENTIAT RIVER nr Ardenvoir	MAY-SEP	118	137	150	72	163	182	208
	MAY-JUL	111	128	140	74	152	169	188
	MAY-JUN	90	104	113	75	122	136	150
WENATCHEE R. at Peshastin	MAY-SEP	275	570	765	54	960	1250	1428
	MAY-JUL	270	530	705	55	880	1140	1277
	MAY-JUN	230	430	568	57	705	905	997
STEMILT nr Wenatchee (miners in)	MAY-SEP	57	84	102	74	120	147	138
ICICLE CREEK nr Leavenworth	APR-SEP	184	255	305	82	355	425	370
	APR-JUL	169	235	280	82	325	390	340
	APR-JUN	137	189	225	83	260	315	270
COLUMBIA R. bl Rock Island Dam (2)	JUN-SEP	28100	32300	35200	78	38100	42300	45171
	JUN-JUL	20200	23700	26100	76	28500	32000	34423

WENATCHEE - CHELAN RIVER BASINS Reservoir Storage (1000 AF) - End of May					WENATCHEE - CHELAN RIVER BASINS Watershed Snowpack Analysis - June 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	492.7	615.8	450.6	Chelan Lake Basin	4	94	33
					Entiat River	1	0	0
					Wenatchee River	6	77	32
					Squilchuck Creek	0	0	0
					Stemilt Creek	1	0	0
					Colockum Creek	1	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

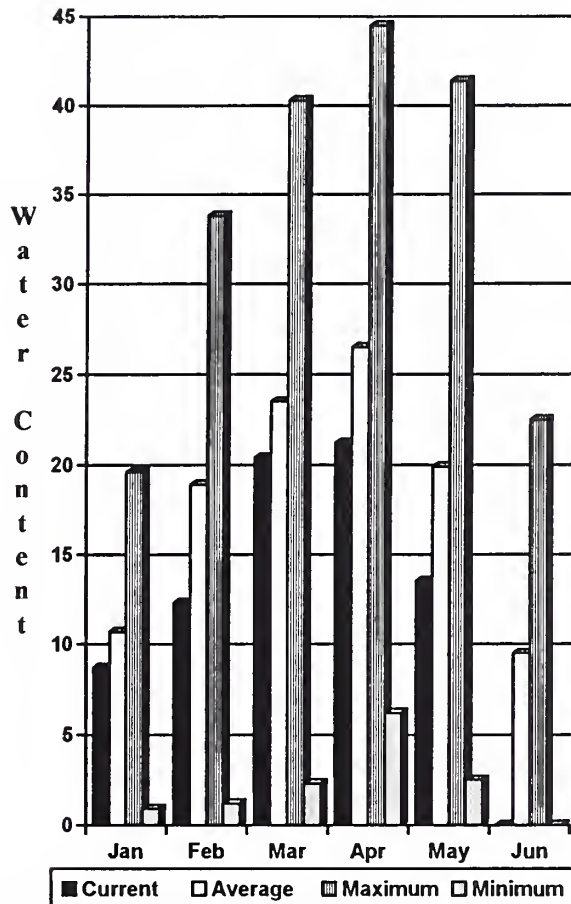
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

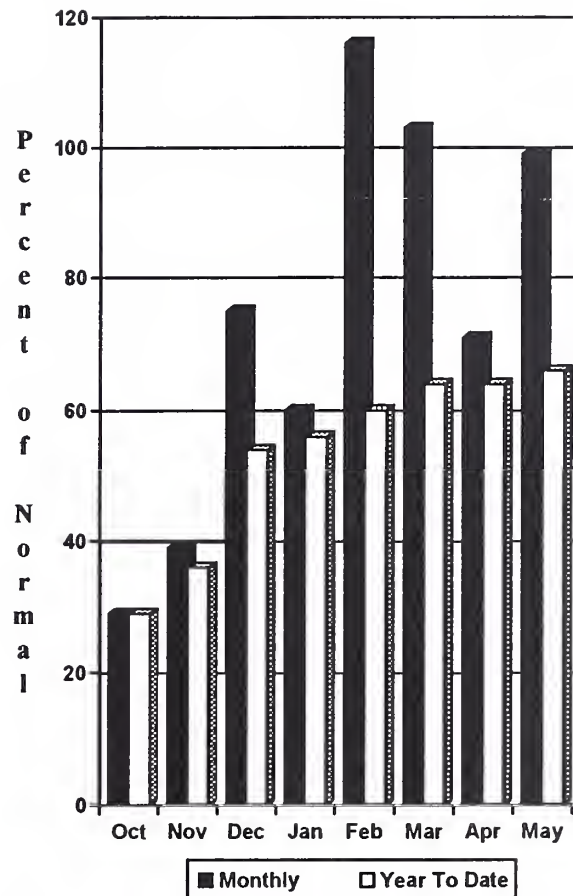
(2) - The value is natural flow - actual flow may be affected by upstream water management.

5) Yakima River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

June 1 reservoir storage for the five major reservoirs was 655,600 acre feet, 70% of average. June 1 summer streamflow forecasts are for below normal in the Yakima Basin. Forecasts for the Yakima River at Cle Elum are for 57% of normal; Naches River, 75%; the Yakima River near Parker, 63%; Ahtanum Creek, 71%; and the Tieton River, 78%. A new forecast point for the Klickitat River near Glenwood was 52% of normal. May streamflows had the Yakima River at Parker at 64% of normal, 72% for the Yakima near Cle Elum, and 71% for the Naches River. June 1 snowpack was 25% based upon 11 snow courses and SNOTEL readings. May precipitation was 99% of normal and 66% for the water year-to-date. Temperatures were three degrees above average for May. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U. S. Bureau of Reclamation's forecast for the total water supply available which includes irrigation return flow.

For more information contact your local Soil Conservation Service office.

YAKIMA RIVER BASIN

Streamflow Forecasts - June 1, 1994

		<<----- Drier ----- Future Conditions ----- Wetter ----->>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
KEECHELUS LAKE INFLOW	JUN-JUL	9.0	18.0	24	47	30	40	51
	JUN-SEP	15.0	26	33	53	40	51	62
	JUN-JUN	9.0	15.0	20	55	24	31	36
KACHESS LAKE INFLOW	JUN-JUL	13.0	20	25	56	30	37	45
	JUN-SEP	16.0	24	30	58	36	44	52
	JUN-JUN	11.0	16.0	20	61	24	29	33
CLE ELUM LAKE INFLOW	JUN-JUL	76	100	117	58	134	158	201
	JUN-SEP	94	123	143	60	163	192	239
	JUN-JUN	49	70	84	61	98	119	137
YAKIMA at Cle Elum	JUN-JUN	67	102	125	50	148	183	251
	JUN-JUL	107	157	192	53	225	280	361
	JUN-SEP	156	215	255	57	295	355	444
BUMPING LAKE INFLOW	JUN-SEP	40	53	62	81	71	84	77
	JUN-JUL	34	45	53	82	61	73	65
	JUN-JUN	21	31	37	82	44	53	45
AMERICAN RIVER near Nile	JUN-SEP	40	47	52	80	57	64	65
	JUN-JUL	30	37	42	75	47	54	56
	JUN-JUN	21	26	30	77	34	39	39
RIMROCK LAKE INFLOW	JUN-SEP	85	101	111	78	122	137	143
	JUN-JUL	60	71	79	75	87	98	105
	JUN-JUN	37	45	51	76	57	65	67
NACHES near Naches	JUN-SEP	225	280	320	75	360	415	424
	JUN-JUL	186	235	265	76	295	345	347
	JUN-JUN	116	155	182	75	210	250	243
AHTANUM CREEK nr Tampico (2)	MAY-SEP	19.0	24	27	71	30	36	38
	MAY-JUL	17.0	22	25	74	28	33	34
	MAY-JUN	15.0	18.0	21	75	24	27	28
YAKIMA near Parker	JUN-SEP	355	495	590	63	685	825	938
	JUN-JUL	260	375	455	61	535	650	749
	JUN-SEP	355	495	590	63	685	825	938
KLICKITAT near Glenwood	JUN-JUN	10.0	16.0	20	51	24	30	39
	JUN-SEP	19.0	29	36	52	43	53	70

YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of May					YAKIMA RIVER BASIN Watershed Snowpack Analysis - June 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	122.9	140.4	144.0	Yakima River	11	162	25
KACHESS	239.0	99.3	133.1	218.0	Ahtanum Creek	1	0	0
CLE ELUM	436.9	277.3	327.6	378.0				
BUMPING LAKE	33.7	29.1	30.8	27.0				
RIMROCK	198.0	127.0	159.7	167.0				

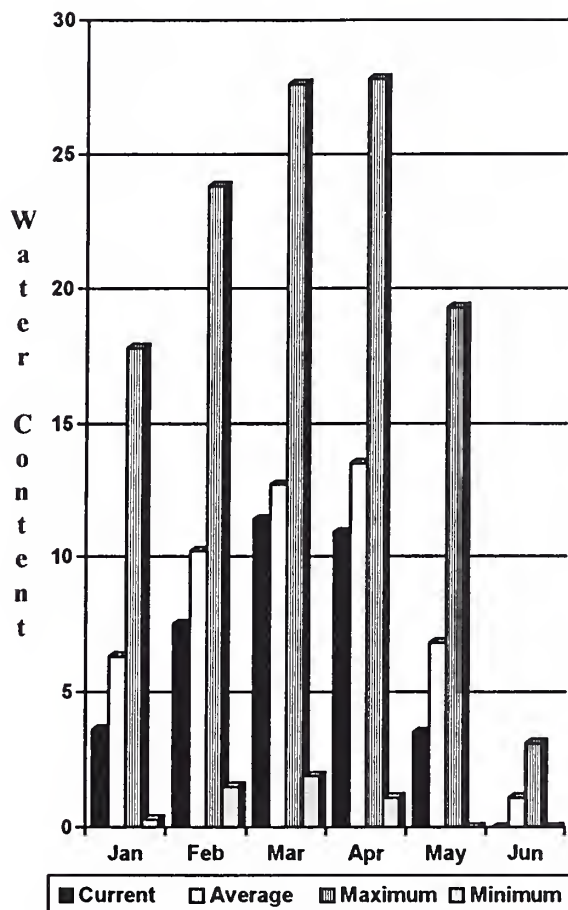
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

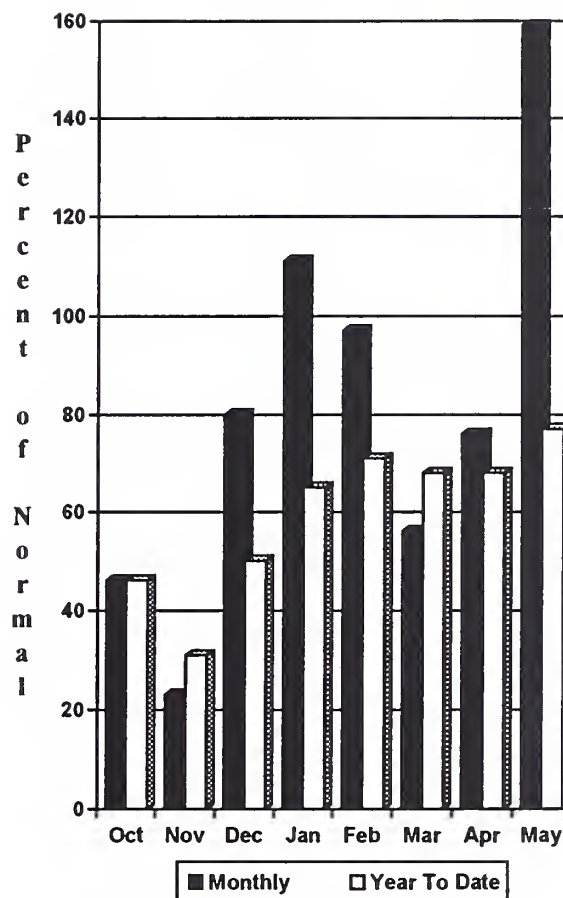
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

6) Walla Walla River Basin

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

June 1 snowpack was at 0% of normal. The forecast for the coming summer is for 81% of average streamflow in the Walla Walla River for 70% in the Grande Ronde; 47% in the Snake River; and 88% in Mill Creek. May streamflow was 62% of normal in the Walla Walla River, 59% for the Snake River, and 75% on the Grande Ronde River near Troy. May precipitation was 159% of average, bringing the year-to-date precipitation to 77% of normal. The Touchet SNOTEL site apparently melted out on May 17. Temperatures averaged two degrees above normal.

For more information contact your local Soil Conservation Service office.

WALLA WALLA RIVER BASIN

Streamflow Forecasts - June 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		-----		Chance Of Exceeding *		-----		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
GRANDE RONDE at Troy (1)	JUN-JUL	190	280	320	69	360	450	466
	JUN-SEP	240	345	395	70	445	555	564
SNAKE blw Lower Granite Dam (1,2)	JUN-JUL	2340	3450	3960	41	4470	5580	9678
	JUN-SEP	3370	4780	5420	44	6060	7470	12390
MILL CREEK at Walla Walla	MAY-SEP	3.4	5.3	6.6	88	7.9	9.8	7.5
	MAY-JUL	3.2	5.1	6.4	88	7.7	9.6	7.3
	MAY-JUN	3.2	5.0	6.2	87	7.4	9.2	7.1
SF WALLA WALLA nr Milton Freewater	MAY-JUL	24	28	30	81	32	36	37
COLUMBIA R. at The Dalles (2)	JUN-SEP	27400	34300	38900	65	43500	50400	59652
	JUN-JUL	19100	24800	28700	63	32600	38300	45431

WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of May				WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - June 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of Last Yr Average
		This Year	Last Year	Avg			
					Mill Creek	1	0 0

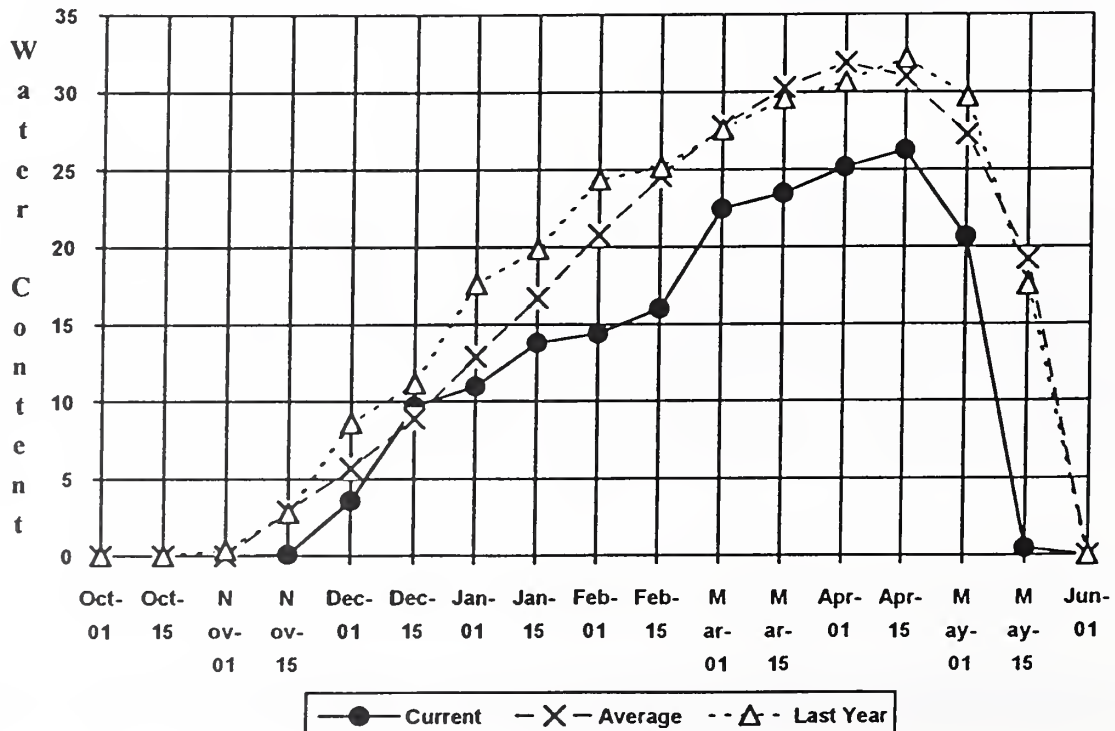
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

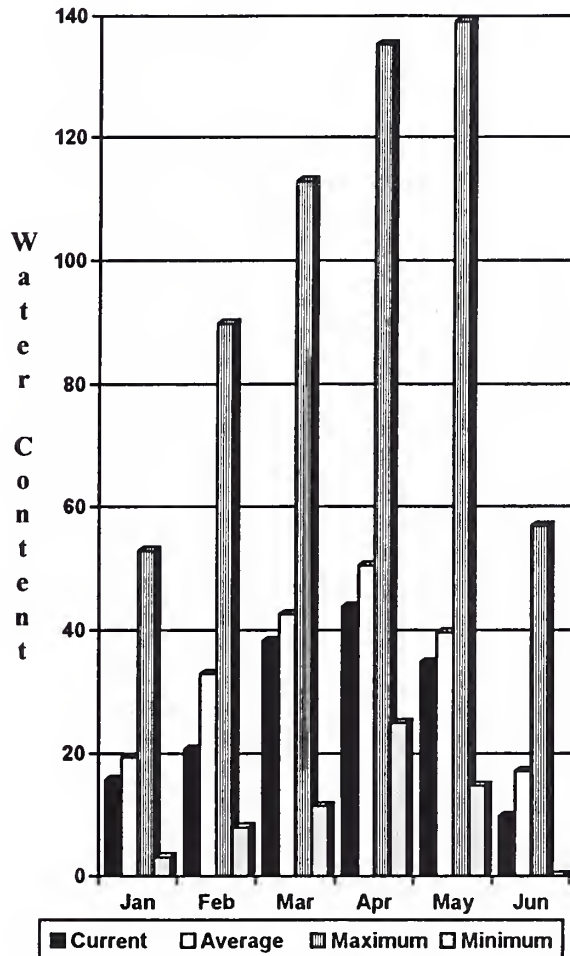
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Touchet #2 SNOTEL

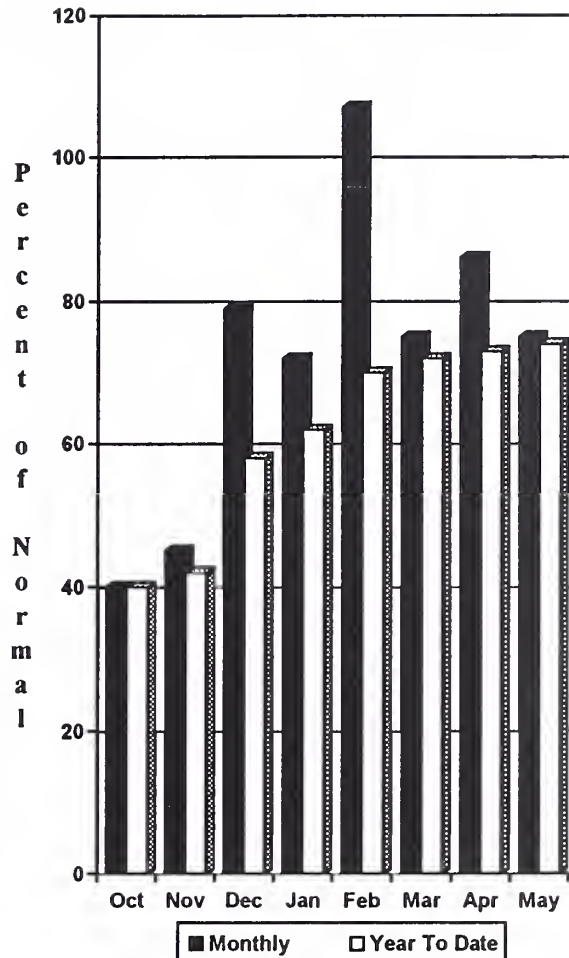


7) Cowlitz - Lewis River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

May precipitation was 75% of normal, bringing the precipitation to 74% of average for the water year. June 1 snow cover for the Cowlitz River was 61%, and for the Lewis River it was 38%. The forecast for summer runoff in the Lewis River is 70% of normal. The Cowlitz River, is forecasted for 53% of normal runoff. May streamflow in the Cowlitz River was 66% of average, and 56% in the Lewis River. The Paradise Park SNOTEL contained the most water content for the basin with 43.6 inches of water. Normal June 1 water content is 48.1 inches. Temperatures were four degrees above normal for May.

For more information contact your local Soil Conservation Service office.

COWLITZ - LEWIS RIVER BASINS

Streamflow Forecasts - June 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		-----		Chance Of Exceeding *		-----		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
LEWIS RIVER at Ariel (2)	MAY-SEP	380	505	590	70	675	805	848
	MAY-JUL	310	415	485	70	555	660	696
	MAY-JUN	255	340	400	69	460	545	578
COWLITZ R. bl Mayfield Dam (2)	MAY-SEP	35	500	815	53	1130	1600	1531
	MAY-JUL	29	420	685	53	950	1340	1292
	MAY-JUN	19.0	335	550	53	765	1080	1038
COWLITZ R. at Castle Rock (2)	MAY-SEP	20	570	975	48	1380	1970	2021
	MAY-JUL	17.0	470	806	48	1140	1640	1679
	MAY-JUN	14.0	380	650	48	920	1320	1349
KLICKITAT near Glenwood	JUN-JUN	10.0	16.0	20	51	24	30	39
	JUN-SEP	19.0	29	36	52	43	53	70

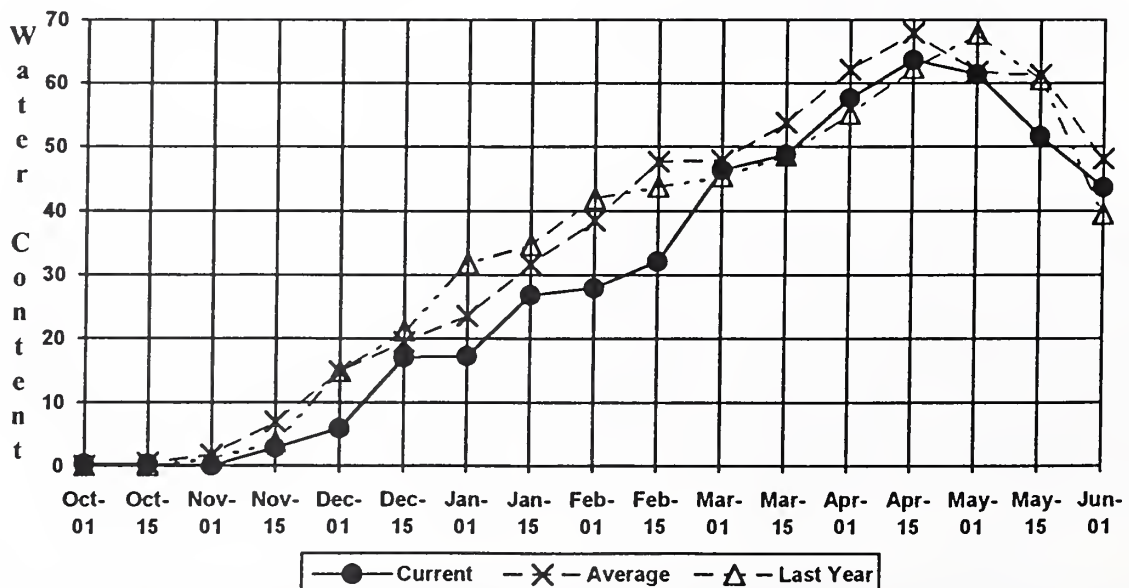
COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of May					COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - June 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Cowlitz River	6	152	61
					Lewis River	4	84	38

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

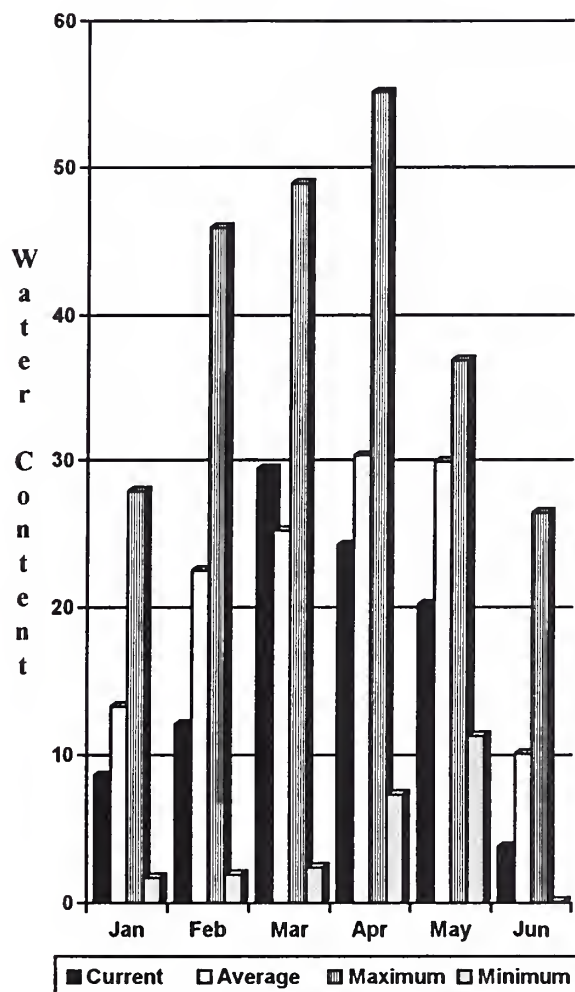
PARADISE SNOTEL



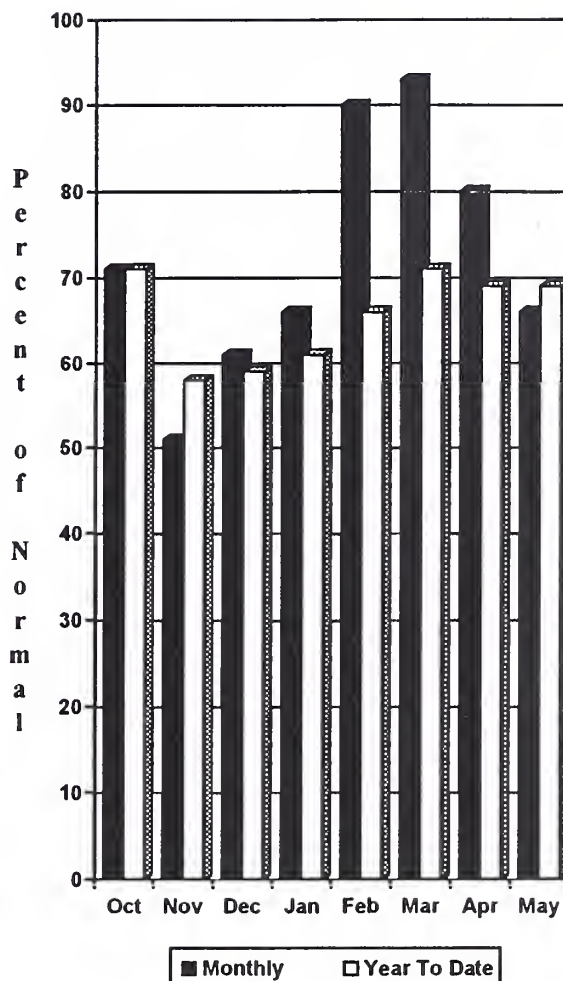
* No average snow pack is available for Mount Crag at this time.

8) White - Green River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

May precipitation was 66% of normal. It brought the water year-to-date to 69% of average. Summer runoff is forecasted to be 58% of normal for the Green River and 52% for the Cedar River, 46% for the Rex River; 62% for the South Fork of the Tolt River and 48% for the Cedar River at Cedar Falls. June 1 snowpack was 52% of normal in the White River Basin and 0% in the Green River Basin. Water content on June 1 at the Stampede Pass SNOTEL, at an elevation of 3860 feet, was 0.0 inches. This site has a June 1 average of 15.0 inches. Temperatures were three degrees above average for May.

For more information contact your local Soil Conservation Service office.

WHITE - GREEN RIVER BASINS

Streamflow Forecasts - June 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
GREEN RIVER below Howard Hanson Dam	JUN-JUL	12.0	30	42	54	54	73	78
	JUN-SEP	28	48	62	58	76	96	106
	JUN-JUN	1.0	15.0	25	45	35	50	55
CEDAR RIVER near Cedar Falls	JUN-JUL	3.0	9.0	13.0	46	18.0	24	29
	JUN-SEP	6.0	14.0	19.0	52	25	33	37
	JUN-JUN	2.0	6.8	10.1	51	13.4	18.2	20
REX RIVER near Cedar Falls	JUN-JUL	0.1	2.2	4.2	46	6.2	9.2	9.2
	JUN-SEP	0.1	3.2	5.7	46	8.2	12.0	12.3
	JUN-JUN	0.1	1.7	3.1	46	4.5	6.7	6.8
CEDAR RIVER at Cedar Falls	JUN-JUL	2.0	7.0	10.0	46	13.0	18.0	21
	JUN-SEP	6.0	9.0	11.0	48	13.0	16.0	22
	JUN-JUN	0.5	5.5	8.9	46	12.3	17.3	19.4
SOUTH FORK TOLT near Index	JUN-JUL	1.5	2.5	3.2	51	3.9	4.9	6.3
	JUN-SEP	3.7	4.8	5.5	62	6.2	7.3	8.9
	JUN-JUN	0.9	1.7	2.3	55	2.9	3.7	4.2

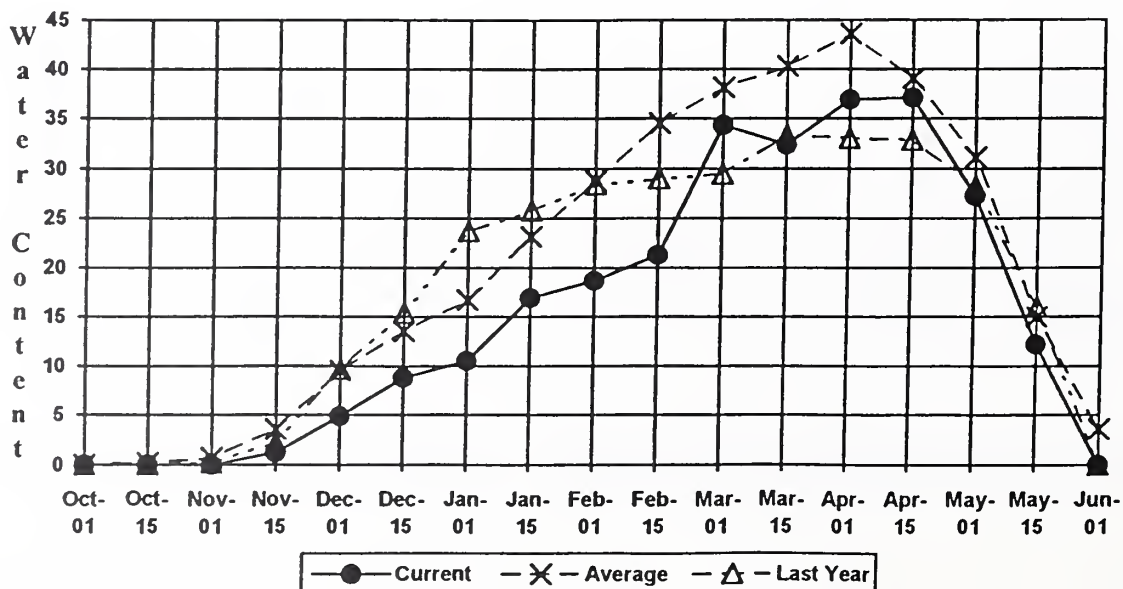
WHITE - GREEN RIVER BASINS Reservoir Storage (1000 AF) - End of May					WHITE - GREEN RIVER BASINS Watershed Snowpack Analysis - June 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					White River	2	126	52
					Green River	2	0	0
					Cedar River	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

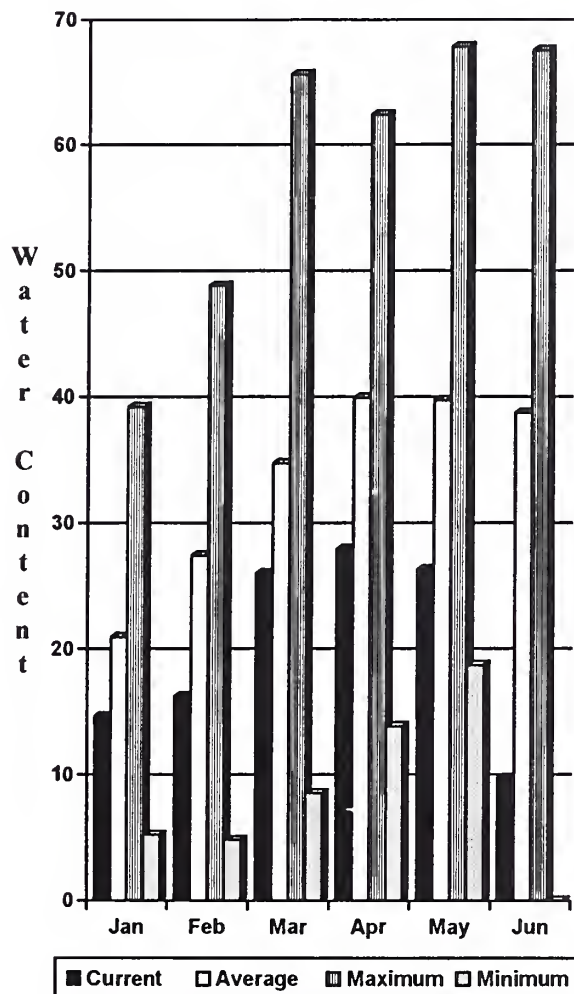
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Stampede Pass SNOTEL

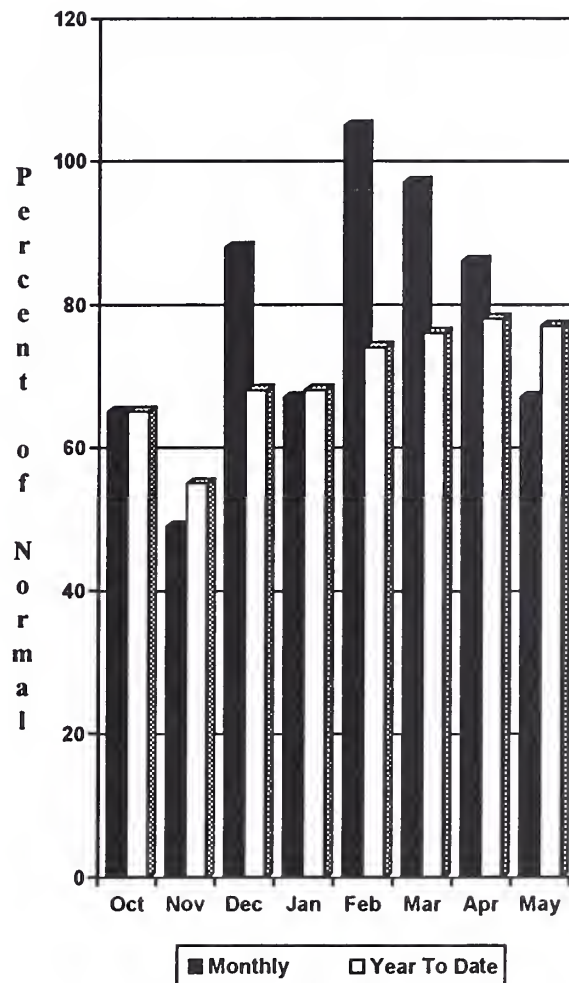


9) North Puget Sound River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

June 1 snow cover in the Skagit River was 30% of normal, and much below normal in the Baker River. Forecast for the Skagit River streamflow is for 65% of normal for the spring and summer period. May streamflow in the Skagit River was 91% of average. Other summer forecasts include the Baker River at 86% of average and Thunder Creek at 91%. Precipitation for May was 67% of average with a water year-to-date at 77% of normal. Harts Pass SNOTEL, at 6500 feet, had 6.0 inches of water content. Normal June 1 water content is 25.3 inches. June 1 reservoir storage was above average, with Ross Lake at 115% normal and 84% of capacity. May temperatures were two degrees above normal.

For more information contact your local Soil Conservation Service office.

NORTH PUGET SOUND RIVER BASINS

Streamflow Forecasts - June 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
THUNDER CREEK near Newhalem	JUN-JUL	117	129	138	86	147	159	160				
	JUN-SEP	210	225	235	91	245	260	259				
	JUN-JUN	51	62	69	86	76	87	80				
SKAGIT RIVER at Newhalem (2)	MAY-SEP	965	1150	1270	65	1390	1580	1963				
	MAY-JUL	810	960	1060	66	1160	1310	1608				
	MAY-JUN	610	740	830	70	920	1050	1188				
BAKER RIVER near Concrete	JUN-JUL	345	370	390	80	410	435	490				
	JUN-SEP	595	610	620	86	630	645	717				
	JUN-JUN	138	166	185	82	205	230	225				

NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of May					NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - June 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	1184.5	1145.9	1033.9	Snohomish River	3	0	12
DIABLO RESERVOIR	90.6	85.3	87.5	86.1	Skagit River	5	117	30
GORGE RESERVOIR	9.8	8.0	8.2	8.3	Baker River	0	0	0

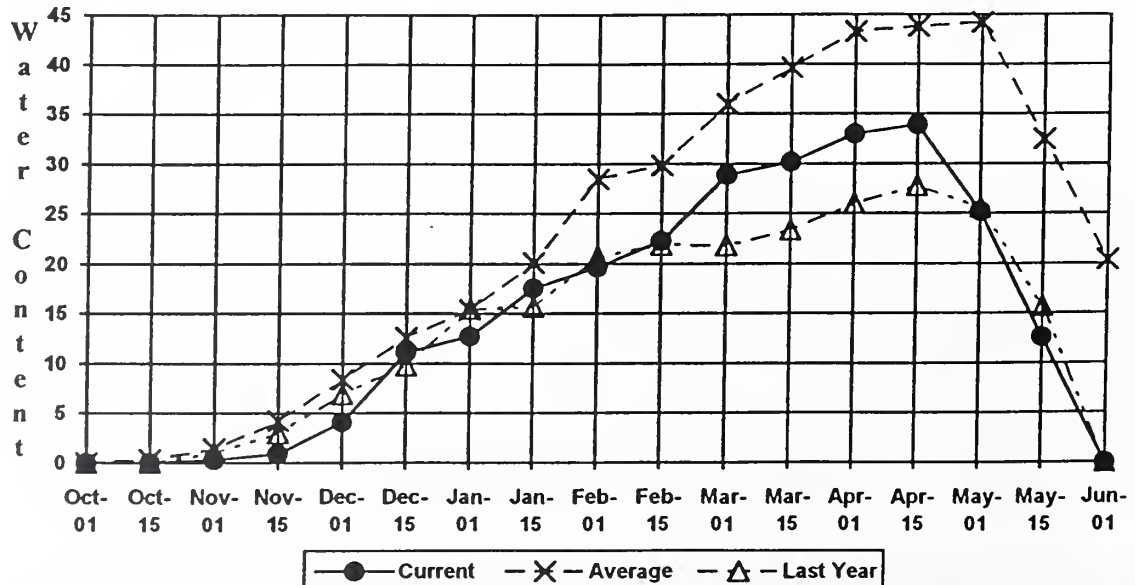
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

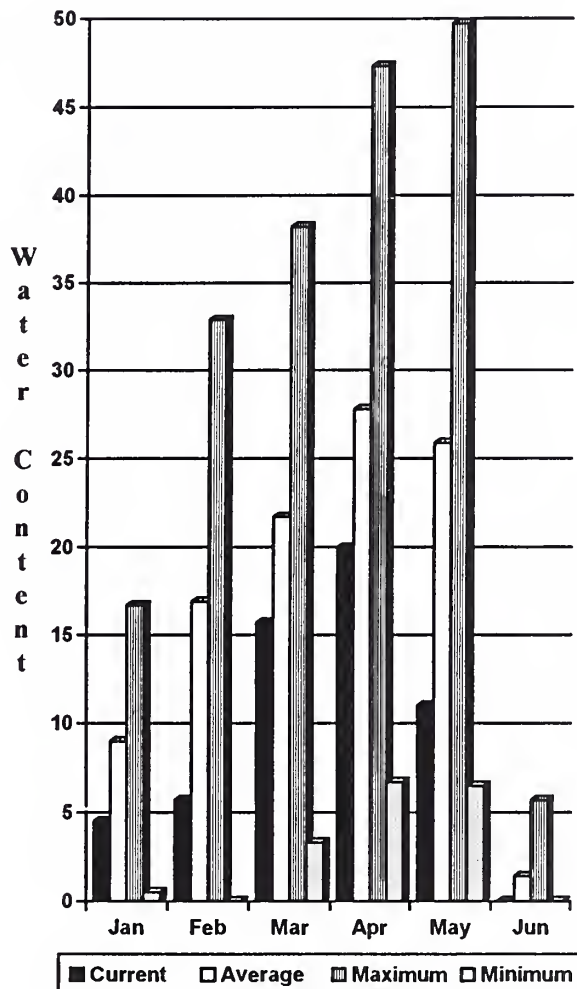
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Rainy Pass SNOTEL

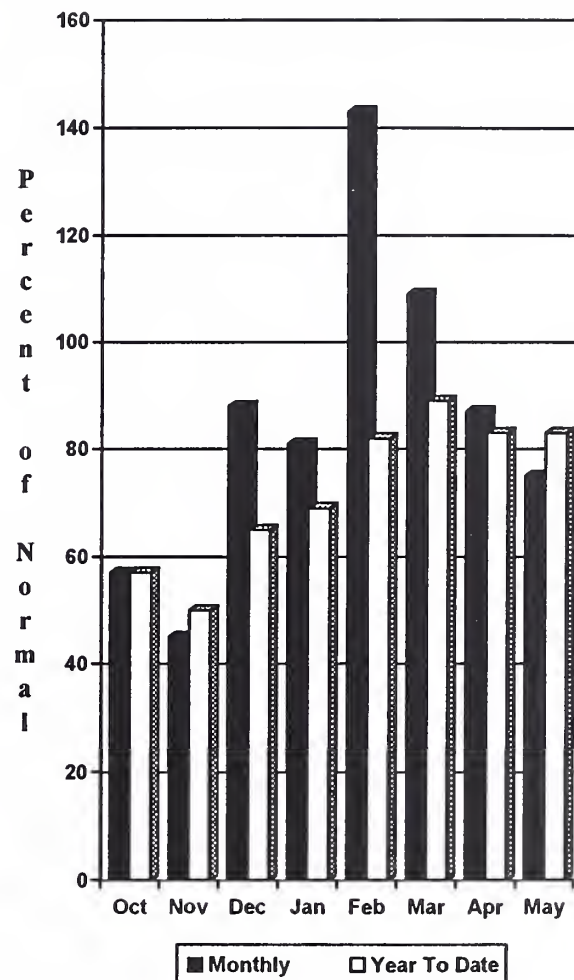


10) Olympic Peninsula River Basins

Mountain Snowpack* (inches)



Precipitation* (% of normal)



*Based on selected stations

May precipitation was 75% of average. Precipitation has accumulated at 83% of normal for the water year. May precipitation at Quillayute was 4.42 inches. Snow cover at Mount Crag SNOTEL in the Olympic Basin melted out on May 28 which is near normal for this site. June forecasts for streamflow in the basin are for 73% of average for the Dungeness River and 75% for the Elwha River. The Big Quilcene can expect near to slightly below normal runoff this summer. Temperatures were two degrees above normal for May.

For more information contact your local Soil Conservation Service office.

OLYMPIC PENINSULA RIVER BASINS

Streamflow Forecasts - June 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		90%		50% (Most Probable)		30%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
DUNGENESS RIVER nr Sequim	MAY-SEP	79	93	102	73	111	125	140
	MAY-JUL	66	77	84	75	91	102	112
	MAY-JUN	46	55	62	78	69	78	79
ELWHA RIVER nr Port Angeles	MAY-SEP	245	290	320	75	350	395	427
	MAY-JUL	199	235	260	76	285	320	342

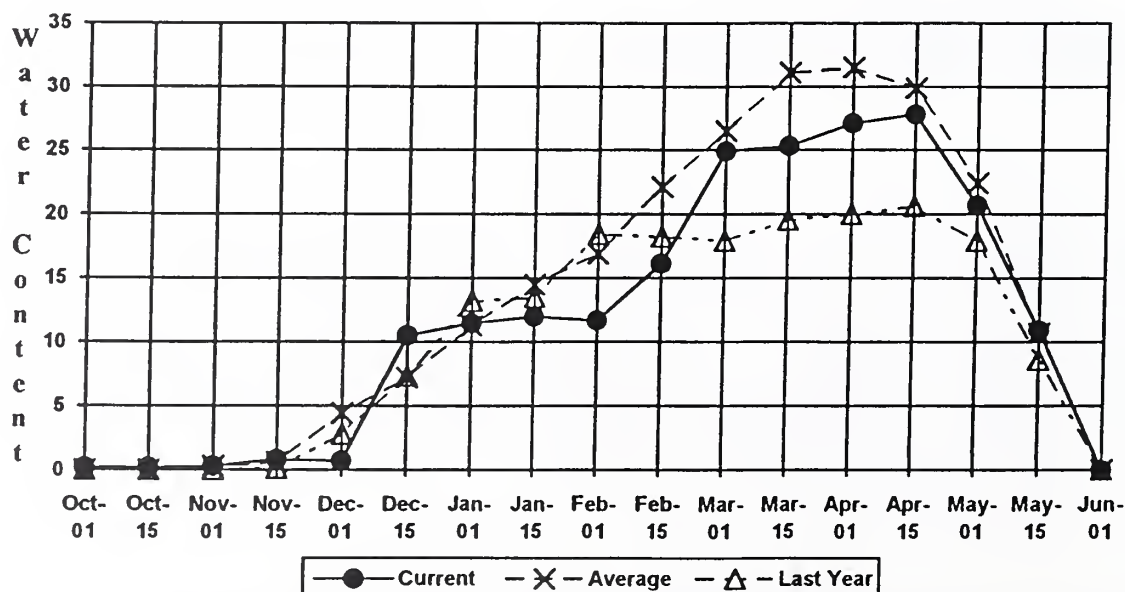
OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of May					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - June 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Elwha River	0	0	0
					Morse Creek	0	0	0
					Dungeness River	0	0	0
					Quilcene River	1	0	0
					Wynoochee River	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Mount Crag SNOTEL



In addition to basin outlook reports, a Water Supply Forecast for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 248, Portland, OR 97209-3489.

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The Following Organizations Cooperate With the Soil Conservation Service in Snow Survey Work*:

Canada

Ministry of the Environment
Investigations Branch, Victoria, British Columbia

State

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal

Department of the Army
Corps of Engineers
U.S. Department of Agriculture
Forest Service
U.S. Department of Commerce
NOAA, National Weather Service
U.S. Department of Interior
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Yakama Indian Nation

Private

Okanogan Irrigation District
Wenatchee Heights Irrigation District
Newman Lake Homeowners Association

*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



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